Interoperable multi-messenger approach for GW sky localization and EM follow-up: practical tools and methods supported by the ESCAPE project.

We present the main strategies and the ongoing implementations for working with gravitational-wave sky localization information in the context of the **CEVO** (Connecting ESFRI projects to EOSC through VO framework) activities of the **ESCAPE** (European Science Cluster of Astronomy & Particle physics ESFRI research infrastructures) project. We will show how gravitational-wave sky maps can be easily and efficiently visualized and processed using Multi-Order Coverage (MOC) maps for fast tiling, catalog queries, transient localizations, visibility and sky map comparisons. MOC is a standard of the Virtual Observatory (VO) which provides a multi-scale mapping based on HEALPix sky tessellation. Practical examples will be discussed in the framework of the the alert messages sent by the LIGO and Virgo collaborations during the O3 observational run. Finally, we will present the recent MOC extension to support time and space coverage and the effectiveness of the proposed strategies to organize the electromagnetic-followup observations for interoperable and fast data exchange.